



DET NORSKE VERITAS TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. E-7612

This Certificate consists of 4 pages

This is to certify that the

Motor Starter

823.60

with type designation(s)

RVS-DN

Manufactured by

Solcon Industries Ltd.

Yoqneam Illit 20692, Israel

is found to comply with

Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and
Det Norske Veritas' Offshore Standards

Application

Soft starter for Asynchronous Motors.

Type	Rated Voltage (V)	Rated Current (A)	Frequency (Hz)
RVS-DN	230 - 690	8 - 2700	50 -60

Place and date
Høvik, 2006-01-25

This Certificate is valid until
2009-12-31

for Det Norske Veritas
AS

Frode Berntsen
Head of Section

Local Office
DNV Limassol

Nicolay Horn
Surveyor

Product description

Soft starter for asynchronous motors.

Type designation	Mains supply (V)	FLC (A)	Motor power (kW)			
			230V	400V	500V	690V
RVS-RN 8	220 - 690	8	2.3	4	5.5	7.5
RVS-RN 17	220 - 690	17	4	7.5	11	15
RVS-RN 31	220 - 690	31	8.5	15	18.5	22
RVS-RN 44	220 - 690	44	12	22	30	37
RVS-RN 58	220 - 690	58	17	30	37	55
RVS-RN 72	220 - 690	72	21	37	45	60
RVS-RN 85	220 - 690	85	25	50	60	85
RVS-RN 105	220 - 690	105	30	55	75	90
RVS-RN 145	220 - 690	145	40	75	90	132
RVS-RN 170	220 - 690	170	50	90	110	160
RVS-RN 120	220 - 690	120	60	110	132	185
RVS-RN 310	220 - 690	310	-	160	220	250
RVS-RN 390	220 - 690	390	-	200	250	355
RVS-RN 460	220 - 690	460	-	250	315	450
RVS-RN 580	220 - 690	580	-	315	400	500
RVS-RN 820	220 - 690	820	-	450	600	600

RVS-RN 950	220 - 690	950	-	550	700	950
RVS-RN 1100	220 - 690	1100	-	630	800	1000
RVS-RN 1400	220 - 690	1400	-	800	900	1300
RVS-RN 1800	220 - 690	1800	-	950	1250	1500
RVS-RN 2150	220 - 690	2150	-	1250	1500	2000
RVS-RN 2400	220 - 690	2400	-	1400	1750	2250
RVS-RN 2700	220 - 690	2700	-	1550	2000	2500

Application/Limitation

Supply voltage range: 220-690 V, 50/60 Hz

Voltage variation: - 15 % + 10%

Frequency variation: 45 - 65Hz

Temperature range in operation: 0 - 50 _C

Max starting current: 500 % of FLC

Max. starts pr. hour: 4 - 10 depending of application

DNV Temperature class: A

DNV Vibration class: A

DNV Humidity class: A

EMC: EMC Directive

To be used on DNV class
A locations.

The Type Approval is based on rated current with use of a by-pass contactor (from size 950 A and above).

The RVS-DN must be regarded as a component. The actual installation is to be designed according to SOLCON RVS-DN Instruction Manual and according to the applicable DNV Rules for the actual application. To be installed in an enclosure with an IP degree in accordance with DNV Rules w.r.t. location.

Type Approval documentation

Tests carried out

Type tests in accordance with 60947-1 & 60947-4-1 (partly). Heat run test in accordance with UL 508.

Visual inspection, Performance, Power Frequency Dielectric Tests, Damp heat, Insulation resistance, High voltage.

EMC: The following tests are in accordance with the EMC directive / IEC 60947-4-1: Electrical fast transient (Burst), electrical slow transient (Surge),

RF-common mode Voltage, radiated RF-electromagnetic fields, electric discharge (ESD), radiated and conducted emission.

Marking of product

RVS-DN - Type designation - Current - Voltage - Control Voltage - Options

Certificate retention survey

The scope of the retention/renewal survey is to verify that the conditions stipulated for the Type Approval is complied with and that no alterations are made to the product design or choice of materials.

The main elements of the survey are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Production Sample Tests (PST) and Routines (RT) checked (if not available tests according to PST and RT to be carried out)
- Review of type approval documentation
- Review of possible change in design, materials and performance
- Ensuring traceability between manufacturer's product type marking and Type Approval Certificate.

Survey to be performed at renewal only.

END OF CERTIFICATE

Notice: This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.

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